

or each". It is respectfully submitted that this phrase does not render the claims indefinite. The phrase is used in reference to previously claimed one or more images. Thus, in subsequent reference to the images, it would be improper to use the word "the" if there were a plurality of images and it would be improper to use the word "each" if there were only one image. In other words, the phrase "the or each" is understandable when referring to an element which was first indicated as "at least one." It is worth noting that the claims have been examined four times and it is only now that this rejection has been entered even though the claims contained the phrase "the or each" every time they were examined.

Claims 1, 3, 6, 7, and 12-14 stand rejected under 35 U.S.C. §103(a) as obvious over Gullman et al.

During a telephone conversation with the Examiner on April 25, 2003, it was explained to the Examiner that the memory 24 referred to in the Office Action as anticipating the claimed non-volatile memory for storing a plurality of complex images is actually a 32k PROM, which, according to the Gullman disclosure, is used to store "an embedded fixed code" which is used to form a token. See col. 4, lines 57-60. After some consideration, the Examiner referred to col. 5, lines 58-60 where it is stated that a plurality of biometric templates are permanently stored. This

gave rise to two questions: are biometric templates the same thing as the claimed "complex images", and where are the templates stored.

Historically, the term biometrics was used to refer to the use of mathematics and statistics in the biological sciences. Recently, the term has been widely used to refer to the identification of people through statistical or mathematical analysis. The following definition of "biometrics" is taken from the web site of The Biometric Consortium: "Biometrics are automated methods of recognizing a person based on a physiological or behavioral characteristic. Among the features measured are; face, fingerprints, hand geometry, handwriting, iris, retinal, vein, and voice."

(<http://www.biometrics.org/html/introduction.html>)

Although a face and a fingerprint may be considered a complex image, they are not biometrics. A biometric is not an image of a face or a fingerprint, it is a measurement.

This understanding of the term biometrics is confirmed by the Association for Biometrics and the International Computer Security Association which define biometrics as "a measurable, physical characteristic or personal behavioral trait used to recognize the

identity, or verify the claimed identity, of an enrollee."

(<http://www.afb.org.uk/docs/glossary.htm>)

It is even more clear that Gullman does not store complex images when one considers the meaning of the term "biometric template". According to the Common Criteria Biometric Evaluation Working Group, a biometric template is "a user's stored reference measure based on biometric features extracted from biometric samples."

([http://www.cesg.gov.uk/technology/biometrics/media/BEM\\_10.pdf](http://www.cesg.gov.uk/technology/biometrics/media/BEM_10.pdf))

Experts also define a biometric template as "a data set representing measurement of an enrollee".

([http://www.qed.org/2002/Biometrics/AAMVA/AAMVastd01\\_032Anx\\_I\\_IrisRec.pdf](http://www.qed.org/2002/Biometrics/AAMVA/AAMVastd01_032Anx_I_IrisRec.pdf))

"A biometric template is the result of a mathematical algorithm based on up to 72 data points (minutiae). The minutiae points are extracted from this image and converted into a (binary) mathematical formula used to create the biometric template."

(<http://www.ethentica.com/template.html>)

It is, in fact, a goal of biometric identification systems to simplify complex images (of faces and fingerprints, for example) so that many biometric templates can be stored in a relatively

small memory. When using biometrics to identify a person, it is necessary to compare the biometric template of the person being identified to thousands or hundreds of thousands of stored templates. Thus, the templates must be as simple as possible so that comparisons can be made quickly. If biometric templates were complex images, it would require extraordinary processing power and/or an unreasonable amount of time to identify someone.

For all of these reasons, Gullman cannot be said to disclose or suggest the claimed memory for storing complex images. Furthermore, when the term "complex images" is read in light of the instant specification, it is clear that the invention concerns humanly perceptible images, not mathematical formulae.

As to the question of where the templates are stored, the Examiner suggested that they were stored in the EPROM 24 even though Gullman does not say where they are stored. In fact, Gullman makes reference to memory nine times. Below is a listing of every mention of memory in the Gullman reference.

1-"memory means for storing acceptance threshold level data along with previously obtained biometric information of the authorized user and a fixed code" (claim 1 of Gullman)

2-"memory means for storing biometric information of the

authorized user and for storing acceptance level data" (claim 6 of Gullman)

3-"In an exemplary embodiment of the invention, the biometric security mechanism is an integrated circuit card including a processing unit, memory and a biometric sensor. The memory stores a template of the authorized user's biometric information, along with a verification algorithm." (col. 2, lines 48-53 of Gullman)

4-"the host system, having generated the challenge code, retains the challenge code in memory to decode the token." (col. 4, lines 27-29 of Gullman)

5-"processor 22 with on-chip random access memory" (col. 4, lines 42-43 of Gullman)

6-"a read only memory (ROM) 24" (col. 4, lines 44-45 of Gullman)

7-"processor 22 is an 8-bit microprocessor with 156 bytes of random access memory available on-chip," (col. 4, lines 50-51 of Gullman)

8-"16 kbytes of RAM, may be located apart from the 8051 microprocessor off-chip" (col. 4, lines 54-56 of Gullman)

9-"A nonvolatile memory element, e.g., ROM 24 is for example a 32 kbyte memory." (col. 4, lines 56-57)

It is respectfully submitted that none of these references to memory teaches or suggests the claimed "non-volatile means in said client for storing a plurality of complex images," as set forth in claim 1, nor the "non-volatile store of complex images" set forth in claim 14, both being part of the user apparatus rather than the host.

With regard to the memory referred to in paragraph number 1, above, it is unclear whether the memory is in the host or the user apparatus. In either case, it is not specified that it is capable of storing a plurality of complex images. The Examiner has taken the position that a biometric template is the same as a complex image. However, the memory referred to in this part of Gullman does not store a plurality of biometric templates. It stores only one set of biometric information ("biometric information of the authorized user"). Thus, it cannot read on the claimed memory.

The memory referred to in paragraph 2, above, also only stores one set of biometric information ("biometric information of the authorized user"). In addition, it is not clear whether this memory is in the host or the user apparatus. Thus, it cannot read on the claimed memory.

The memory referred to in paragraph 3, above, "the memory stores a template of the authorized user's biometric information. Thus, it cannot read on the claimed memory.

The memory referred to in paragraph 4, above, is clearly in the host and not the user. Thus, it cannot read on the claimed memory.

The memory referred to in paragraph 5, above, is volatile RAM. Thus, it cannot read on the claimed memory.

Paragraph 6 refers to the ROM discussed above. This memory is clearly stated to contain a fixed code, not a plurality of biometric templates. Thus, it cannot read on the claimed memory.

The memory referred to in paragraph 7, above, is volatile RAM. Moreover, it is only 156 bytes, hardly capable of storing a plurality of complex images. Thus, it cannot read on the claimed memory.

The memory referred to in paragraph 8, above, is also volatile RAM. Although larger than the memory referred to in paragraph 7, it is still only 16 kbytes, hardly enough to store a plurality of complex images. Thus, it cannot read on the claimed

memory.

In paragraph 9, above, the previously discussed ROM is identified as being 32 kbyte, hardly enough to store a plurality of complex images. Thus, it cannot read on the claimed memory.

From the foregoing, it is apparent that none of the memory described in the Gullman reference is capable of reading on the claimed memory. This is not surprising given the fact that Gullman does not disclose where the biometric templates are stored and further in light of the fact that biometric templates are not equivalent to the claimed complex images.

The Examiner states that "it would have been obvious...to include the complex image in Gullman et al's system because it is well known in the art that biometric refers to the study of measurable characteristic of a living being for automatically recognizing or verifying identity." This stated reason for including a complex image with biometrics is exactly the reason why it would not be done. The whole purpose of biometrics is to simplify a complex image.

The Examiner further states that Gullman teaches the claimed means for selecting a complex image at col. 2, lines 31-35. That portion of Gullman states "To access the host system, the user



enters the corresponding biometric information to the security mechanism. The mechanism verifies the input against the template, then generates and displays a token based on the verification." It is not seen where any selecting takes place. The user enters information and the machine compares it to a template. There is no selection process implied.

Gullman teaches that after the input data is compared to the template, a token is generated and that token is transmitted to the host. The Examiner states that this reads on the claimed "means for transmitting the identity of said selected complex image or images from client to said remote serve." This cannot be the case for two reasons: first, there was no image selected in Gullman, and second, the token transmitted in Gullman does not identify a selected image.

Claims 2 and 4 stand rejected under 35 U.S.C. §103(a) as obvious over Gullman et al. in view of Davies. These claims require that a key image be selected in preference to a dummy image. As stated above, there is no selecting process in Gullman. Moreover, since these claims depend from claim 1, the arguments made above regarding claims 1 and 14 apply to these claims as well.

The Examiner states that it would be obvious to combine

Davies with Gullman because it would "improve Gullman". If this were sufficient incentive to combine references then all inventions which combine known elements would be obvious.

The Davies patent is co-owned with the instant application and is discussed in the background section of the instant application. On October 3, 2002, the undersigned spoke by telephone with the Examiner and explained the invention to the Examiner. In particular, it was explained that the complex images of the present invention are stored on the client computer rather than the server computer as shown in Davies. It was further explained that this provided the advantage of conserving bandwidth since the images do not need to be transmitted from the server to the client as in Davies.

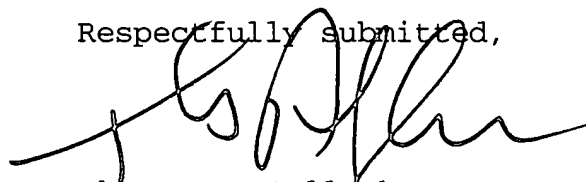
Claims 5, 8, and 15 stand rejected under 35 U.S.C. §103(a) as obvious over Gullman in view of Gilchrist. These claims relate to the downloading of images from the host to the client. These dependent claims are allowable for the same reasons as described above with reference to claims 1 and 14.

Gilchrist describes a biometric system. The Examiner states that the step of transmitting a template from the host to the client is the same as the claimed downloading of complex images. However, as discussed above, a biometric template is the

antithesis of a complex image. It is a mathematical formula which is a simplification of a complex image. For example, the biometric template of a person's face is so simplified that the facial expression is not included. In other words, a complex image as that term is used in the present application, includes an image of a person's face in which one can perceive whether the person is smiling or frowning. A biometric template by design cannot convey that information.

In light of all of the above, it is submitted that all of the claims are in order for allowance, and prompt allowance is earnestly requested. Should any issues remain outstanding, the Examiner is invited to call the undersigned attorney of record so that the case may proceed expeditiously to allowance.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'T. Gallagher', written over the typed name.

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